

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231*HS*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/120,105 09/10/93 WINTER

A HOE92F294

IM62/0403

EXAMINER

CONNOLLY AND HUTZ
1220 MARKET STREET
P.O. BOX 2207
WILMINGTON DE 19899

WILSON, D

ART UNIT	PAPER NUMBER
----------	--------------

1713

19

DATE MAILED:

04/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No. 08/120,105	Applicant(s) Winter et al.
Examiner D.R. Wilson	Group Art Unit 1713

- Responsive to communication(s) filed on Jan 27, 2000
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- Claim(s) 15 and 17-27 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- Claim(s) _____ is/are allowed.
- Claim(s) 15 and 17-27 is/are rejected.
- Claim(s) _____ is/are objected to.
- Claims _____ are subject to restriction or election requirement.

Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The drawing(s) filed on _____ is/are objected to by the Examiner.
- The proposed drawing correction, filed on _____ is approved disapproved.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All Some* None of the CERTIFIED copies of the priority documents have been received.
- received in Application No. (Series Code/Serial Number) _____.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- *Certified copies not received: _____.
- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- Interview Summary, PTO-413
- Notice of Draftsperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION**1. Status of Application**

The request filed on 1/27/00 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08/120,105 is acceptable and a CPA has been established. An action on the CPA follows.

2. Response to Amendment

Applicant's amendment filed 1/27/00, has been fully considered with the following results.

The prior rejections of Claims 7-8, 12 and 15 are overcome by the amendment canceling Claims 7-8 and 15 and changing the dependency of Claim 12 to new Claim 17 and the rejections are withdrawn. However, this is moot as most of the prior rejections are applied to Claims 15 and 17-27 as is discussed below.

3. Previously Cited Statutes

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Objection to New Matter

The amendment filed 1/27/00 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

- a. The use of "heating/cooling rates of 20°C" as now specified in Claim 17.

There only appears to be a basis for the heating rate. In regards to the argument that



Art Unit: 1713

one of ordinary skill in the polypropylene art knows what a DSC is and how the measurement has to be carried out is not deemed to be persuasive because no evidence supporting this statement is presented. What was alleged to be enclosed to support this argument was not enclosed. Further, the issue is not whether or not a DSC would be known, but rather under what conditions the measurements were made.

b. There appears to be no basis for copolymers of propylene containing all the comonomers together as indicated in new Claim 18. (1L)

Applicant is required to cancel the new matter in the reply to this Office action.

5. Rejection Under 35 USC § 112, First Paragraph

a. Claims 15 and 17-²⁸~~27~~ are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The subject matter in question is that of the previous section. (1L)

b. Claims 15 and 17-²⁸~~27~~ are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant depends on DSC characterization of the melting behavior of components of the blend, as well as that of the blend itself, in regards to both melting peak and width of the melting point endotherm. The crystallinity of both the components and the blend would be expected to be a function of the thermal history of the materials, yet the specification provides no

data on thermal conditioning of the samples prior to measurement. (See for example the discussion in EP'189 regarding thermal fusion data as a function of thermal history). *make*
Thus, it is unclear what the precise melting points and peak widths represent. Further, there is no teaching as to how half widths and quarter widths are determined for melting peaks which are not completely resolved. It appears that the examples are typically unresolved, e.g., Examples 1-3 discuss shoulders, Example 4 has a double peak and Example 5 only reports a maximum. For multimodal compositions the specification also does not appear to teach on which peak the peak widths are measured.

c. Claims 17-20 and 23-~~27~~²⁸ are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for processes using racemates of chiral metallocenes as catalysts, does not reasonably provide enablement for processes using any and all metallocene catalysts. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. First, the specification teaches that catalysts having mirror symmetry at the central metal atom would only produce atactic polymers. As the claimed process concerns the preparation of compositions which are crystalline it would not be expected that non chiral metallocene catalysts would be effective except for ethylene. Secondly, although the specification states that the separation of the stereoisomers is known in principle (page 8), there is no teaching as to how, or in fact whether, any of the stereoisomers have been separated.

28
ND

d. Claims 15, 17-20 and 24-~~27~~²⁶ are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for processes using those metallocenes exemplified in the specification, does not reasonably provide enablement for use of combinations of any and all metallocenes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. Applicant's claimed process calls for the use of catalysts and polymerizations which produce compositions of two or more components wherein the lowest melting point of the composition is not less than that of the lower melting component, i.e., a mixed melting point is not depressed, and the melting range maximum is between 120 and 165°C and the half-intensity width and quarter-intensity width are greater than 10 and 15°C, respectively. However, applicant provides no guidance as to how to select combinations of monomers and catalysts wherein this occurs, other than in the examples. Undue experimentation would clearly be involved to determine the scope of the claimed invention. Further, it is noted that Example 6 appears to fall outside of the claimed invention in that the lower melting point of the blend is less than that of the lower melting component. (Compare the results of Examples 6 and 9).

6. Rejection Under 35 USC § 112, Second Paragraph

26

Claims 15 and 17-~~27~~²⁶ are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The language of Claim 17 is indefinite because:

Art Unit: 1713

(i) The parenthetical expression (heating/cooling rate 20°C/min) is considered to be indefinite. It is Patent Office Policy not to permit parenthetical expressions in the claims as it is not known how they further limit the claimed subject matter. It is suggested that the parenthetical expression be removed and the language ", heating rate 20°C," be substituted. (As noted above, there is also nothing in the specification as filed that teaches the use of heating and cooling rates are used in the measurement of the melting points.)

(ii) The composition cannot be characterized by the melting point of the lower melting component being lower than any melting point of the composition. The melting point of the lower melting component would by definition be the lower melting point of the composition¹.

(iii) A bimodal or multimodal melting range would have more than one melting peak and it is indefinite as to which peak "the melting peak" refers. Further, if there must be melting points differing by at least 5°C, then the claimed melting range must be at least bimodal¹.

(iv) In the olefin of formula R^aCH=CHR^b, R^a or R^b cannot be an alkyl of 1 carbon atom when the other R^a or R^b is hydrogen, i.e., it cannot be propylene. Further, the definition of R^a or R^b when connected to make a ring is not specified, nor could they form a ring if they are hydrogen. The

¹ It is recognized that applicant may intend to be referring to the melting points of the components when prepared or isolated as separate entities. However, this is not the language of the claims.

language "can" form a ring is also indefinite because it is unclear whether they form a ring or not. It is suggested that ", can" be deleted.

(v) In the descriptions of formulas II and III, there is no antecedent basis for "the linear type", or "the cyclic type". It is suggested that the indefinite article "a " be used. Further, the use of "type" also makes the claim indefinite.

When appended to an otherwise definite expression, "type" so extends the scope of the expression as to render it objectionably indefinite. *Ex parte Copenhaver*, 109 USPQ 118.

(vi) It is unclear as to what monocyclic, polycyclic or hydrocarbon radicals R³ and R⁴ are. The language "can form a sandwich structure" is also indefinite because it is then unclear as to whether the compound has or hasn't a sandwich structure.

(vii) There are two conflicting definitions of "n", and the definitions of "m", "R⁸", "R⁹" and "R¹³ⁱⁱ", should be deleted as they only confuse what is being claimed.

b. Claim 18 is indefinite because of the use of an improper Markush group.

When materials recited in a claim are so related as to constitute a proper Markush group, they should be recited in the conventional manner, or in the alternative. For example, "wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation, or alternatively, "wherein R is A, B, C or D" is also proper. See M.P.E.P. § 2173.05(h).

c. Claim 23 is indefinite because it is not known whether the first listed metallocene is a racemic or a meso compound.

Art Unit: 1713

d. Claim 24 is indefinite because it is not known what the definitions are of R¹¹ and R¹², or R¹¹ and R¹³, when they are connected to form a ring. There is also no antecedent basis for R¹³.

e. Claim 25 is indefinite because of the word "may", as it is unclear whether the ligands carry additional substituents or not. However, the Office does accept the term "optionally", and it is suggested that "optionally" be substituted for "may". Further, the claim is indefinite because there is no R¹³ in Claim 17, nor are additional substituents for R¹¹ and R¹² defined in Claim 17.

7. Rejection Under 35 USC § 112, Fourth Paragraph

The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claims 20 and 26 are rejected under 35 U.S.C. 112, fourth paragraph, for not further limiting the subject matter in the claim from which they depend. As called for in Claim 17, the two polyolefins are already limited to polypropylenes.

8. Objection to Claims

Claim 17 is objected to because of the following informalities: In the 13th line "polymerized" should presumably read "polymerization". Appropriate correction is required.

9. Rejection Under 35 USC § 102 (b), or In The Alternative USC § 103

Claims 15 and 17-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP'734.

EP '734 discloses a process for preparing a polyolefin composition (e.g., propylene polymer) in the presence of at least two different metallocene catalysts and an aluminoxane. The metallocene catalysts systems are within the scope of those set out in applicants claims, and other broadly recited polymerization process conditions, e.g., temperature and pressure, are considered within the scope of the reference or to be obvious thereover. The substantive process conditions set out in EP '734 would appear to be substantially the same as in applicants Claim 17. However, applicants contend that other limitations pertaining to the melting points of the polyolefins are not disclosed in EP '074. In particular applicants rely on the claim limitation that the claimed process requires the direct polymerization of at least two polyolefins of different melting points where the melting points of the components must differ by at least 5°C. While applicant may intend that it is the constituent polymers by themselves (i.e., not in the blend) which differ in melting point this is not the language of the claims. However, for purposes of this rejection it is assumed that the claim language is amended to state what appears to be intended.. The melting point of the total polymer in Ex. 7 of EP '734 is within the claimed melting maximum range; and applicants other claimed melting point limitations, e.g., pertaining to melting peak height and width, are considered to follow from the melting point difference which would give rise to a broad melting range. It is further noted that in Examples 1-3 of EP '734 the polymer product had a melting point within the range of the constituent polymers or similar to that of the higher melting constituent polymer.

Applicant refers to the declaration of Dr. Winter filed in Serial No. 08/678,558 as establishing unexpected results over the composition of EP'734. First, if applicant wishes to rely on evidence in said declaration applicant needs to make the declaration of record in this application, as a copy was not included with the amendment as alleged. Secondly, the evidence presented is not deemed to be persuasive because it relies on melting points and peak widths measured under conditions which are not completely taught, which would be known to be variables, nor are the conditions to be used in the instantly claimed compositions well defined. The declaration indicates the measurements are taken from a second heating run, heating and cooling at 20°C/min. However, the conditions are not totally specified, such as heating to where, cooling to where, annealed or not. Further, when measuring peak widths, sample size and machine response can also be variables. Applicant has not shown a direct controlled comparison of samples of the invention with those of EP'734. The Examiner acknowledges that in Serial No. 08/678,558, the Examiner withdrew a similar rejection based upon said declaration. However, upon reconsideration the Examiner is not convinced by the evidence submitted.

Initial
25

10. Rejection Under 35 U.S.C. §103(a)

Claims 17-20 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'046 and/or WO'414, optionally further taken with EP'189 and Kaminsky.

EP '046 discloses the production of polyolefin, e.g., ethylene (co)polymer, compositions utilizing a catalyst system comprising at least two different metallocene

catalyst, e.g., containing a Group 4 or 6 metal which includes Zr, Ti, and Hf, and aluminoxane. The reference teaches that the reactor blends can yield mixtures of polymers having different properties such as melting point, molecular weight, density, comonomer content, etc., and the Examples illustrate blends containing ethylene/propylene copolymers, i.e., they are propylene copolymers.

WO '414 teaches the preparation of polyolefin polymer mixtures comprising ethylene (co)polymers which are prepared with aluminoxane-metallocene catalyst systems such as employed by applicants, wherein the blends can be prepared by direct polymerization in a single reactor using two or more catalyst or by blending separately prepared ethylene (co)polymers. The ethylene (co)polymer blend components have, e.g., different mol. wt. and/or comonomer contents. In the Examples in the Tables a number of blends are disclosed wherein the ethylene (co)polymers have different comonomer contents or density ranges including blends comprising two ethylene/α-olefin copolymers (see, e.g., blends 8A, 9D, 20C, 21F and 22E in Table 4). While the α-olefins in the examples are 1-hexene, it would have been obvious to one of ordinary skill in the art to use propene instead of hexene as the comonomer with an expectation of equivalent results because propene is also taught to be a preferred comonomer with ethylene (page 6, line 31 to page 7, line 10). Though WO '414 does not specifically disclose the melting points of the different ethylene/α-olefin copolymers, it is well known in the art that higher comonomer contents correspond to lower densities and melting points. In this regard note the disclosure of EP '189 which also discloses blends of ethylene (co)polymers having different comonomer contents, densities and

melting points, the reference being concerned with providing mixtures of ethylene polymers having different melting points for the manufacture of films. Note the DSC melting points for the ethylene copolymers and higher density polyethylene in Table 1 and Table 2, page 14. It can be seen that the higher density polyethylene has a much higher melting point than the ethylene copolymer, the HDPE having a melting point of about 132 to about 136 and the mixtures having maximum melting peaks within the claimed range. It is considered that the polymer blends described within the scope of WO '414 would inherently have a broad melting range so as to be within the scope of applicants composition. The teachings in the Kaminsky publication further support that ethylene copolymers prepared with metallocene catalysts likewise have melting points which vary in similar fashion with comonomer contents.

Since WO '414 teaches that the polymer blends can be prepared with the use of two metallocene catalyst systems in one reactor and EP '046 specifically teaches the actual preparation of similar polymer blends using two different metallocenes, it would be obvious to prepare the blends disclosed in WO '414 in such fashion, and as discussed above the blends of, e.g., higher and lower density ethylene/α-olefin copolymer disclosed in WO '414 are deemed to include polymer mixtures having a broad melting point range and a melting range maximum within the scope of applicants composition produced by the claimed process.

Applicant traverse the rejection based upon the argument that the references only exemplify the preparation of polyethylenes. The current claims only call for the polymerization of propylene with another comonomer including ethylene, which EP'046

and WO'414 both teach. Even though the copolymers contain a major portion of ethylene units they are still propylene copolymers and the instant claims read upon these compositions.

11. Obviousness Double Patenting Rejection

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 15 and 17-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 5,700,886 (Winter'886). Although the conflicting claims are not identical, they are not patentably distinct from each other because .

Winter'886 teaches polymerization processes which overlap the instant invention, even though the melting behavior of the polyolefins is not taught. The metallocenes of the instant claims are taught and or exemplified. Polymerizations of propylene using two or more racemic zirconium based metallocenes are exemplified in a majority of the examples to produce polymers with broad molecular weight

distributions. Although the melting behavior is not taught, as the same catalysts are used it would be expected that the same melting behavior as is instantly claimed would be an inherent property.

12. Objections to the Disclosure and Minor Informalities

The disclosure is objected to because of the following informalities:

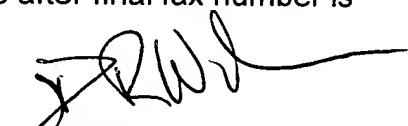
- a. At page 13, lines 28-32, the specification teaches that the compositions produced by the process of the invention have melting points of 20 to 80°C. This is clearly outside of the scope of the invention and appears to be some type of misprint.
- b. Comparison Examples 1 and 2 appear to have little meaning as no data is presented for the resulting blends.
- c. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
- d. The abstract of the disclosure is objected to because it is more than one paragraph and should be restricted to recite a process. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

13. Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D.R. Wilson whose telephone number is (703) 308-2398. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, may be reached at (703) 308-2450.

The fax phone number is (703) 305-5408 or 5433. The after final fax number is (703) 305-3599.



DONALD R. WILSON
PRIMARY EXAMINER